DoD Technical Reference Model (DoD TRM)

Briefing

April 2001

DoD Technical Reference Model

Purpose of the DoD TRM:

- Provide a common conceptual framework to support interoperability

- Define a common DoD vocabulary

- Provide a high level description of the information technology domain

DoD Technical Reference Model

Objectives of the DoD TRM:

- Improve interoperability
- Improve portability (reuse)
- Improve development efficiency
- Promote vendor independence
- Reduce life-cycle costs
- Improve manageability

Technical Reference Model Working Group (TRMWG)

Objectives:

1. To assist in developing a standalone DoD Technical Reference Model and document by coming to a consensus on model extensions and refinements.

2. Validation and update of DoD requirements to improve the TRM.

TRMWG Composition: Members come from the Services & Agencies (e.g., Air Force, Army, Navy, DISA, OSD, NIMA, BMDO, DMSO, NRO).

DoD Technical Reference Model (DoD TRM)

DoD TRM Policy Support:

Joint Vision 2010 as stated by the Chairman of the Joint Chiefs of Staff

ASD(C3I) Memorandum, Subject: Technical Architecture Framework for Information Management (TAFIM) 23 June 1994

ASD(C3I) Memorandum, Subject: Technical Architecture Framework for Information Management (TAFIM) 2 January 1997

OSD Memorandum, Subject: Strategic Direction for a DoD Architecture Framework, 23 February 1998

OSD Memorandum, Subject: DoD Joint Technical Architecture (JTA) Version 2.0, 30 November 1998

ASD(C3I) Memorandum, Subject: DoD Policy Change-Cancellation of the Technical Architecture Framework for Information Management (TAFIM)

OSD Memorandum, Subject: Promulgation of DoD Technical Reference Model (DOD TRM) Version 1.0, 21 March 2000
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The named memoranda, as well as others, reaffirm the need for interoperability, a technical architecture, performance based (open) standards, and an architecture model that supports the warfighter and ensures effective mission support.

Technical Reference Model Document Version 1.0

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D. Services Summary
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DoD Technical Reference Model
User Guide

Technical Reference Model User Guide
Version 1.0

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DoD Technical Reference Model

DoD TRM Enhancements:

- Services Expansion
- Flexibility for placing & selecting services
- Interfaces added
- Real-time & performance support
- Supported by a User Guide
- Extensive set of supporting case studies and examples
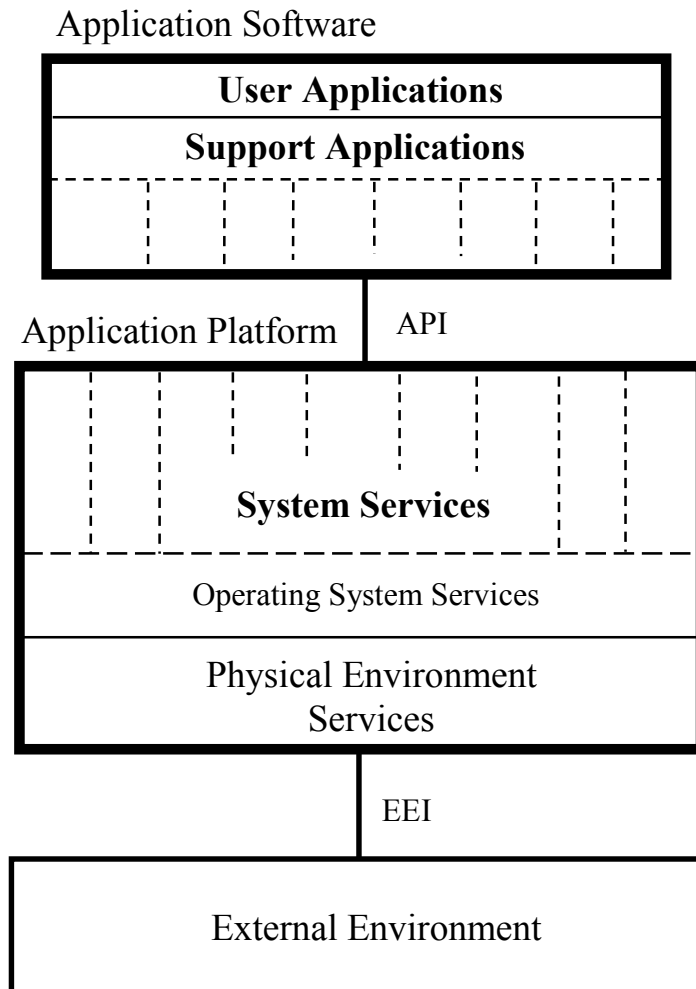- Supports extensive configurations (distributed, networked, client-server, multi-platform)

Users of TAFIM or GOA model will not encounter any incompatibility problems in using the DoD TRM.
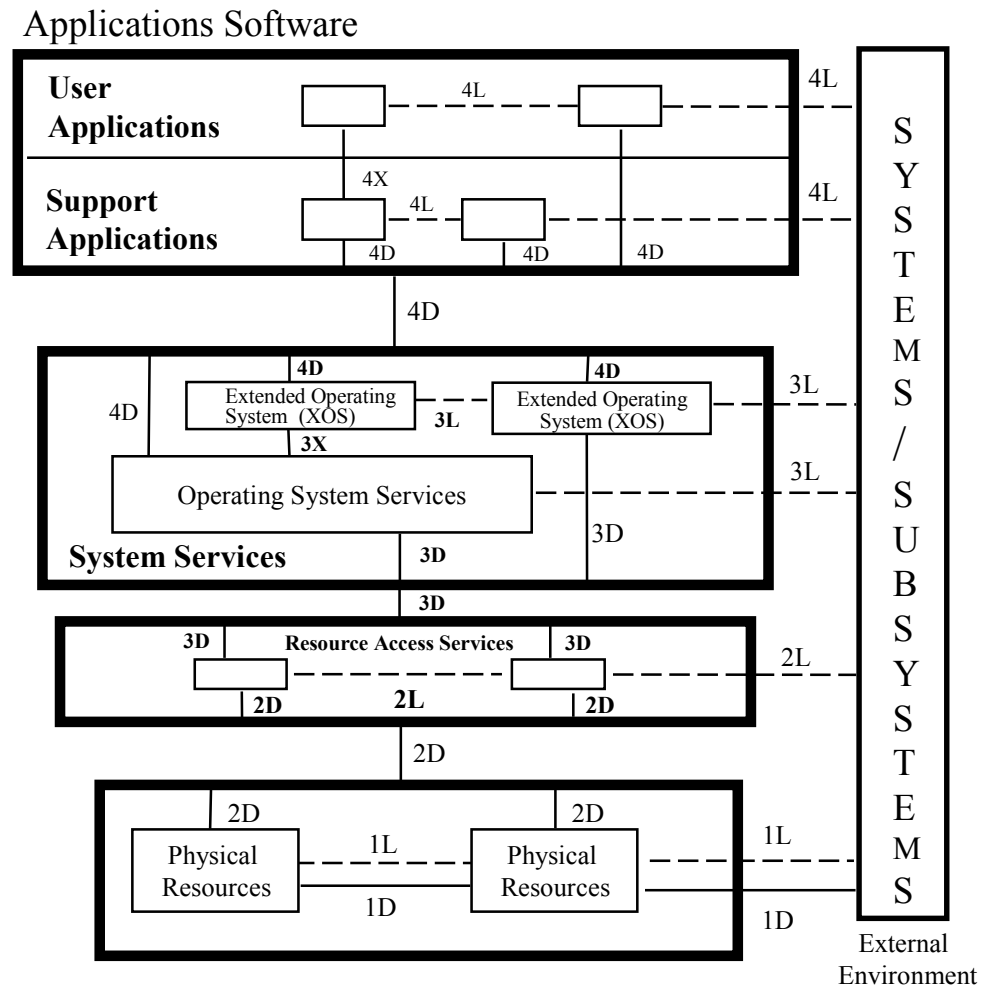
DoD Technical Reference Model
Version 2.0

Services View

Application Software

User Applications
Support Applications

Application Platform   API

System Services

Operating System Services

Physical Environment
Services

EEI

External Environment

Interfaces View

Applications Software

User Applications	4L	4L
Support Applications	4X 4L	4L
	4D 4D 4D	

4D

System Services

4D Extended Operating System (XOS)	4D Extended Operating System (XOS)	3L
4D	3L	
3X		3L
Operating System Services	3D	
3D	3D	

3D

3D	**Resource Access Services**	3D	2L
2D	2L	2D	

2D

2D		2D	1L
Physical Resources	1L	Physical Resources	
	1D		1D

SYSTEMS / SUBSYSTEMS

External
Environment

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DoD Technical Reference Model
Version2.0

Application Software

User Applications

Support Application

Multi-Media	Communications Applications	Business Processing	Environment Management	Database Utilities	Engineering Support	. . .

Application Program Interface(API)

Application Platform

System Services

Softw. Engrg. Svcs.	User Interf. Svcs.	Data Mgmt Svcs.	Data Inter-change Svcs.	Graphic Svcs	Platfrm Comm Svcs.	Security Svcs.	System Mgmt. Svcs.	Distrib. Comp. Svcs.	Internatlizn. Services	. . .

Operating System Services

Physical Environment Services
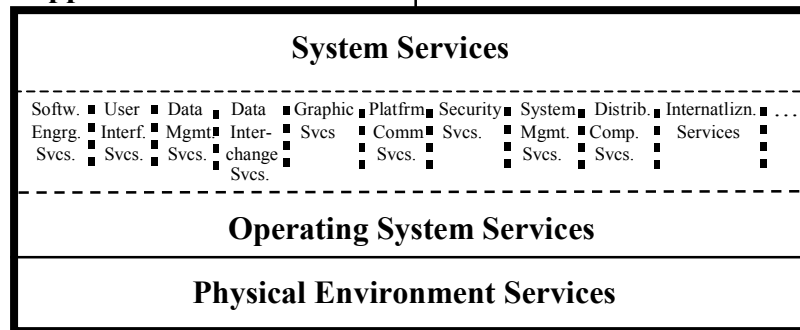
External Environment Interface (EEI)

External Environment

Devices	**Systems**
Communications Infrastructure	**User (Physical/Cognitive)**
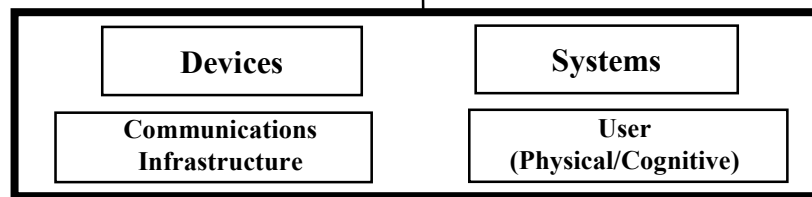
Services View

DoD Technical Reference Model
Version 2.0

Application Software

User Applications	
Support Applications	

4L — 4L

4X

4L — 4L

4D — 4D — 4D

4D

System Services

4D

4D — Extended Operating System(XOS) — 3L — 4D — Extended Operating System (XOS) — 3L

3X

Operating System Services — 3L

3D — 3D

3D

3D

3D — Resource Access Services — 3D — 2L

2D — 2L — 2D

2D

2D — 2D

Physical Resources — 1L — Physical Resources — 1L

1D — 1D — 1D

Physical Resources

SYSTEMS / SUBSYSTEMS

External Environment

Interface View

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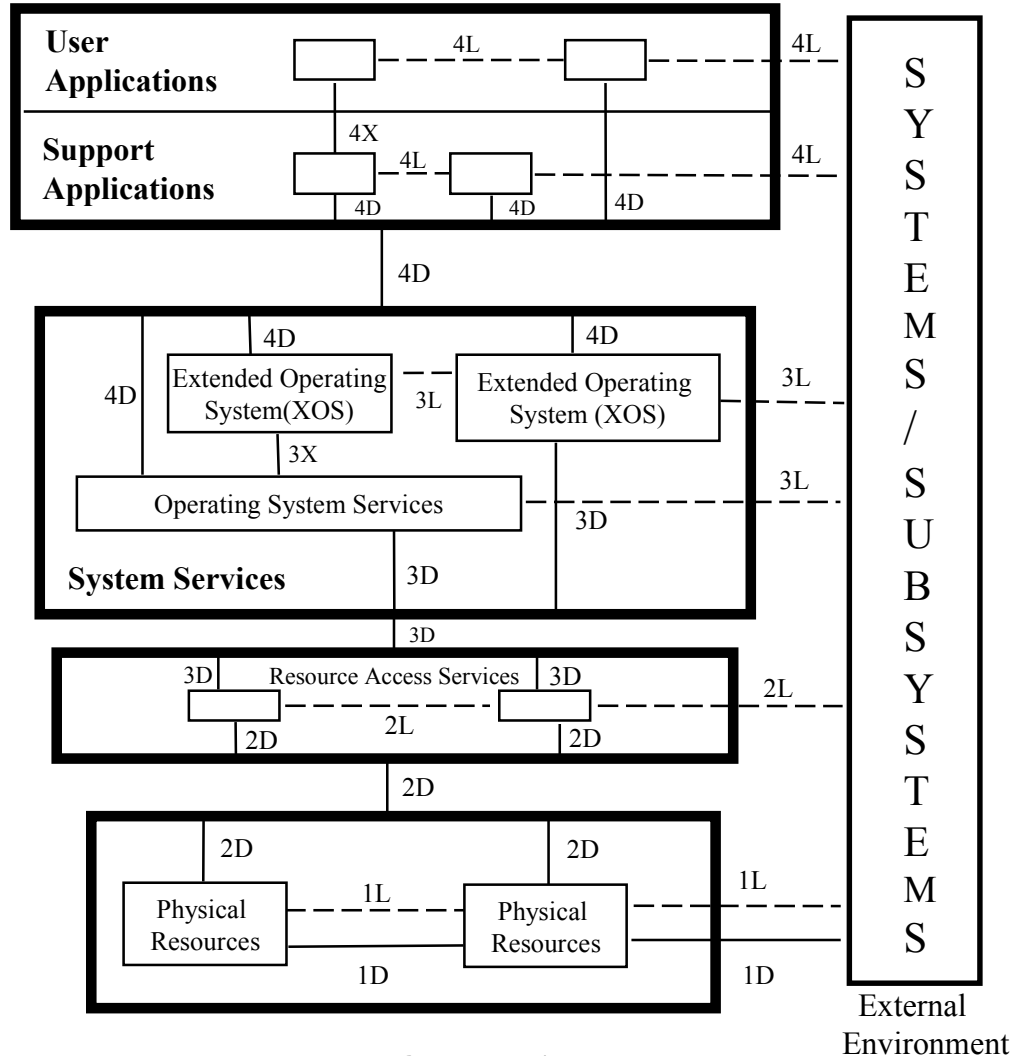
DoD Technical Reference Model
(DoD TRM)

Direct and Logical Interfaces contained in the TRM

Interface Type	Definition
1D	Physical Resources Direct
1L	Physical Resource Logical
2D	Resources-Physical Direct
2L	Resource Access Logical
3D	System Service-Resource Access Direct
3L	System Service Logical
3X	Operating System-Extended OS Direct
4D	Applications-System Services Direct
4L	Applications-Peer Logical
4X	Application-Support Services Direct

Technical Reference Model Working Group
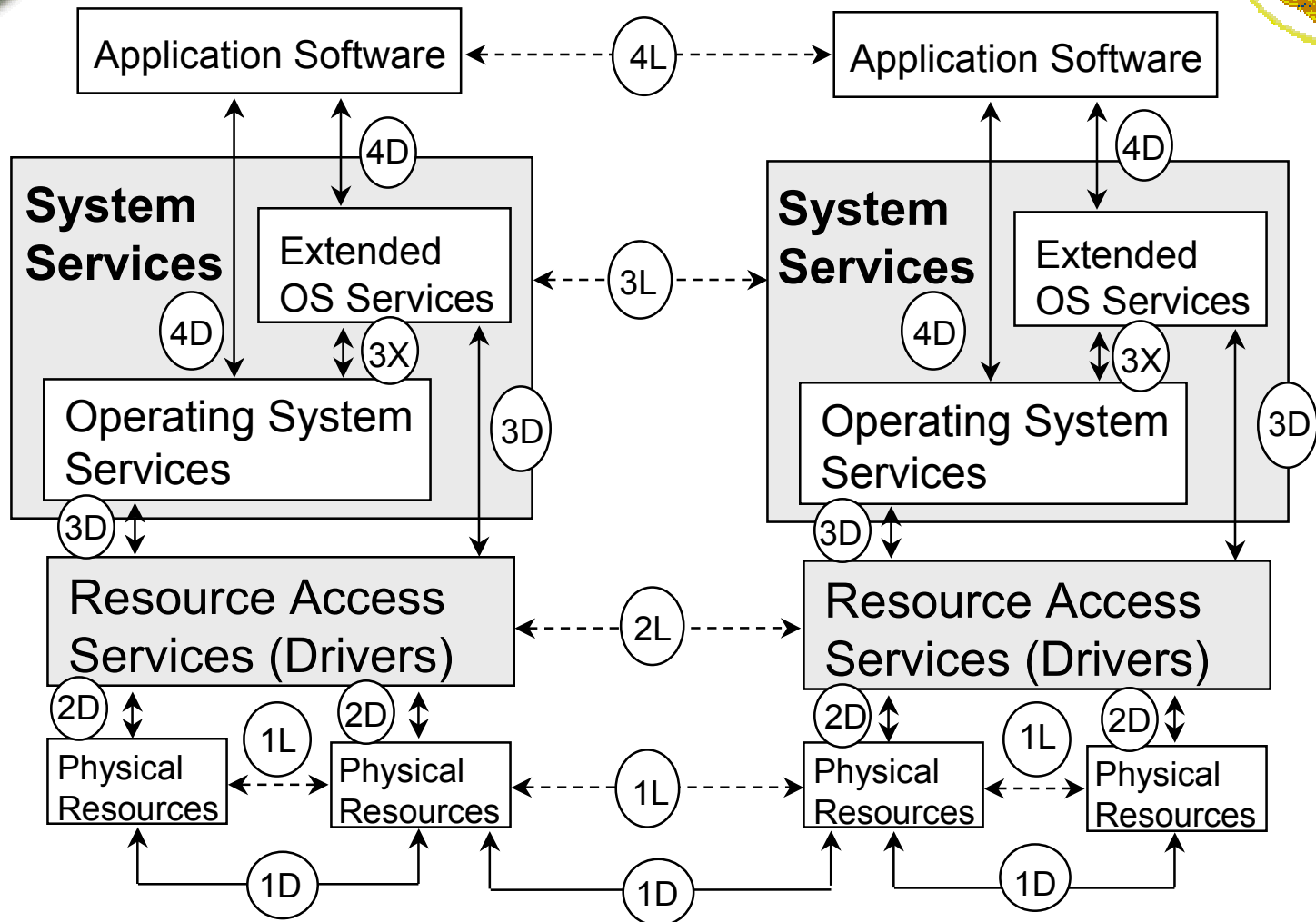
TAFIM TRM
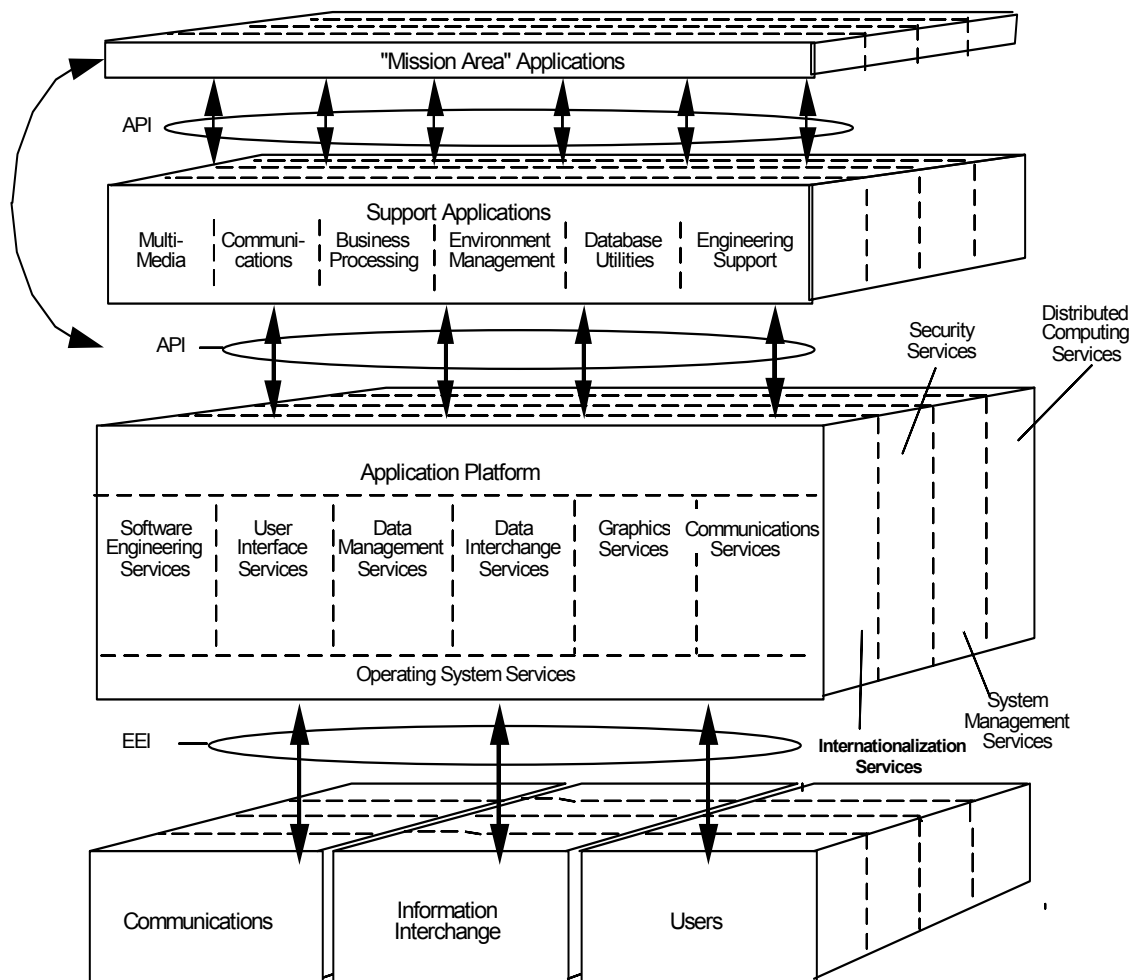
DoD Technical Reference Model

SAE GOA Model Two Platform View

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DoD Technical Reference Model

Case Studies:

- Provide a diversity of examples
- Provide insight to stakeholders (PMs, Acquisition Execs, Architects)
- Provide diversity across domains
- Provide insight into both the service and interface views
- Show how to use the model

Current Case Studies:

-Naval Fires Control System (NFCS)

-Navy Battle Group/ Amphibious Battlegroup

-Transmission Control Protocol/Internet Protocol
 (TCP/IP)

-VETRONCIS Technology Testbed (VTT)

-U.S. Patent Trade Office (PTO)

-Mappings of DII COE and JTA to the DoD TRM

DoD Technical Reference Model (DoD TRM)

TAFIM
(services)

POSIX/OSE/IEEE

NASA SGOAA

SAE GOA
(Interfaces)

DoD TRM
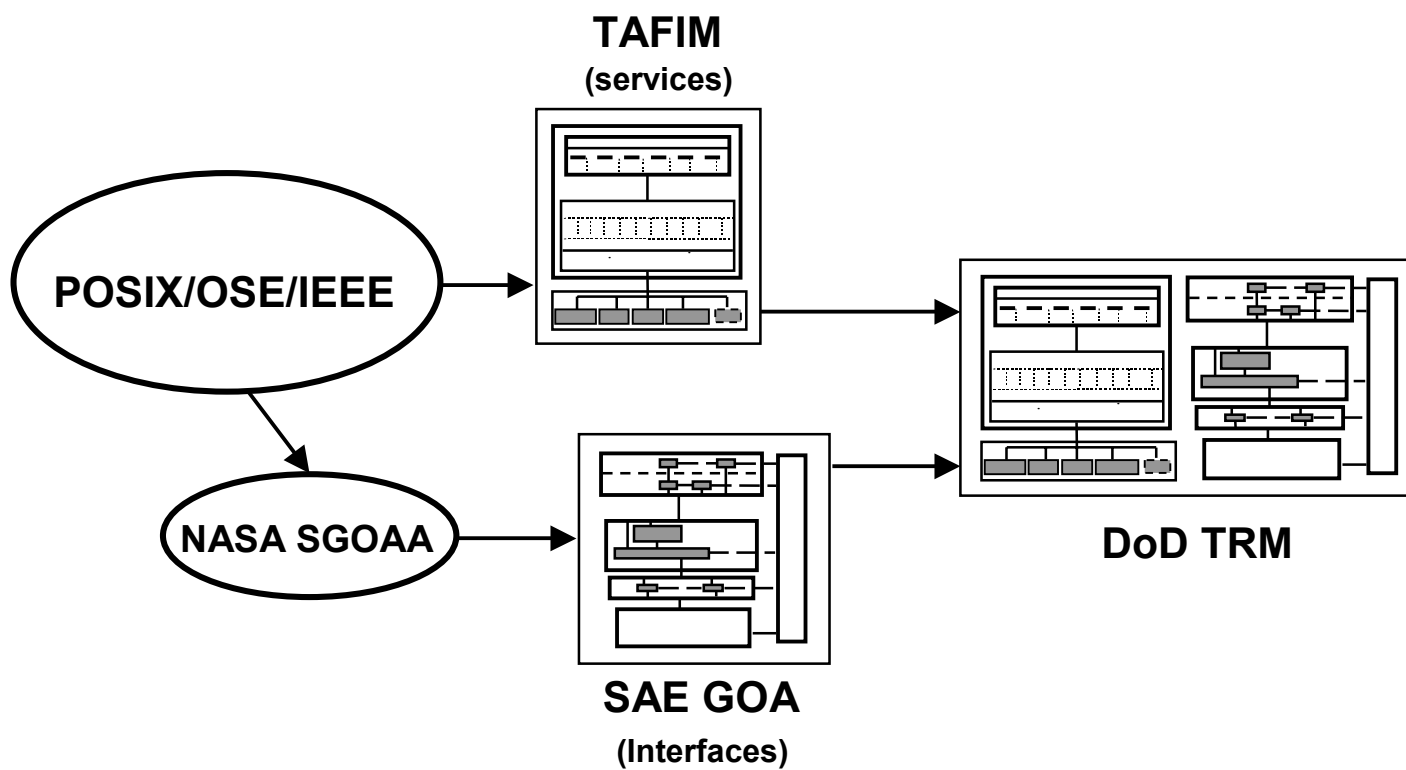
Historical Origins

DoD Technical Reference Model